

# Generalized parton distributions in proton-proton collisions at LHC

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Generalized parton distributions (GPDs) describe the distributions of quarks and gluons in the proton with respect to both longitudinal momentum and transverse position. The transverse spatial distributions of partons can be extracted from measurements of the  $t$ -dependence of hard exclusive processes in  $e$ - $p$  scattering, such as  $J/\psi$  photoproduction at HERA (gluons). This information is an important ingredient in the theory of high-energy  $p$ - $p$  collisions with hard QCD processes (dijets, Higgs boson production). We summarize recent results obtained from applying these ideas to (a) inclusive  $p$ - $p$  scattering (hard processes as a trigger on central collisions, approach to the unitarity limit), (b) diffractive  $p$ - $p$  scattering (rapidity gap survival, Higgs boson search at LHC). We also comment on the possibilities of using high-energy  $p$ - $p$  scattering with hard processes as a means to "measure" the GPDs, complementing the information obtained from  $e$ - $p$  scattering.